DOCUMENT RESUME

ED 288 791 SO 018 582

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TITLE Democratic Citizenship and Information Technology: Promises, Challenges, and Remedies.
PUB DATE 5 Oct 87
NOTE 15p.; Paper presented at the Annual Conference of the American Society for Information Science (50th, Boston, MA, October 5, 1987).
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Artificial Intelligence; *Citizen Participation; *Citizenship Education; *Citizenship Responsibility; Data Processing; *Information Processing; Information Retrieval; Information Science; Information Technology; Social Studies

ABSTRACT

This paper examines the relationship between democratic citizenship and information technology. Modern information technology disputes the idea that citizens can be properly educated to assume the burdens necessary to reap the blessing of freedom. Information technologies challenge the ability of citizens to fulfill the fundamental requirement of democracy: informed participation. In considering how to meet the challenges of information technology, the issues of information processing, contextual knowledge, and selectivity must be addressed. Each is reflected in a number of proposed remedies. Intelligent information system interfaces will serve to reduce the "cost" of citizen information processing by structuring the citizen's investigative work. Students must receive explicit training in information-processing skills. For effective and efficient information retrieval and processing, citizens must possess fundamental contextual knowledge of history and government. Through careful and thoughtful design of both technology and instruction, we can reduce the cost of becoming informed citizens and enhance the effectiveness of citizen participation. (SM)

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DEMOCRATIC CITIZENSHIP AND INFORMATION TECHNOLOGY: PROMISES, CHALLENGES, AND REMEDIES[1]

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> I know no safe depository of the ultimate powers of society but the people themselves; and if we think them not enlightened enough to exercise their control with wholesome discretion, the remedy is not to take it from them, but to inform their discretion. (Thomas Jefferson, in a letter to William Charles Jarvis, 28 September 1820)

Few statements speak so eloquently of the need for an informed citizenry in a democracy. Jefferson joined Jean Jacques Rousseau and John Stuart Mill in advocating a classical theory of democracy, the most distinctive feature of which is the concept of an active, informed, democratic citizenry. Jefferson's lifelong commitment to public education is a clear reflection of this view of the citizen's role in a democracy.

It is fully appropriate, then, to seriously examine the relationship between democratic citizenship and information in light of dramatic changes in technology. This paper approaches the subject by first considering the vitality of the "informed

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[1]Paper presented at the 50th Anniversary Conference of the American Society for Information Science, Boston, Massachusetts, October 5, 1987.

citizen" concept since Jefferson's day, and how the acquisition of information exacts a cost on citizens. The promise of contemporary information technologies may ameliorate some of these costs, but new challenges to achieving the informed citizen ideal are considered. Finally, in light of these challenges, the author advances some suggestions for remedying the negative effects of contemporary information technologies on democratic citizenship.

A Need for Informed Citizens?

Until World War II, the democratic requirement of an informed, participating citizenry was an article of faith among political scientists; indeed, it is still the dominant view of citizenship in school textbooks. Discourse among political theorists (Schumpeter, 1943) and the results of public opinion survey research of the late 1940s and early 1950s precipitated a rethinking of classical democratic theory. The research demonstrated that few citizens were active participants in the political process; low voter turnout was one indicator of this. Moreover, the "informed citizen" was the exception rather than the rule. Elitist theories of democracy provided better explanations for the continued successful operation of our constitutional democracy inspite of the research results. These theories posited a political system divided into two groups: the elite and the remaining mass of citizens. In reality, the success of democracy rests on the elite being informed and participating,

while the citizens at large simply choose among competing elites within a broad political consensus.

Elitist theories of democracy acknowledged what was obvious: for most citizens, the "costs" of becoming informed about the issues of the day and of participating in the political process are higher than the perceived benefits. It takes time to find and understand the information needed to make a reasoned, rational decision. It also takes time and effort to make one's decision known in an effective manner. Presumably, the elite is willing (and has sufficient resources) to invest such time and effort. Political scientists began to turn their attention away from the mass citizenry and to study political elites.

The post-War revision of democratic theory, the abandonment of classical theory in favor of elitist theory, would be most disturbing to Mr. Jefferson, and is very disturbing to those who espouse participatory theories of democracy (e.g., Pateman, 1970). However, the dawn of the Information Age may open a new round in the battle between these two competing theories of democracy. On the one hand, the positive effects of information technology may revitalize the role of the individual citizen; on the other hand, the technology may strain even an elite's ability sustain a meaningful system of democracy based both on a broad political and cultural consensus and on reasoned and informed decisionmaking.

Promises and Challenges of Information Technology

Promises: The Classical View Revitalized

The Information Age has increased both the volume of information and the velocity of information transmission. According to Information Today, the number of on-line databases grows at more than 35 percent annually, making astonishing amounts of information available to citizens. As of April 1984, more than 2,000 databases were available for business and individuals ("Total Databases Top 2000"). Information services like The Source and CompuServe allow individuals to link to an impressive collection of databases as well as to participate with fellow citizens in dozens of forums. Cable television and its four-score and more channels brings citizen viewers a broad range of information avenues. As demonstrated by Columbus, Ohio's QUBE system, information technology can not only link citizens directly to the site of decision but can also facilitate direct citizen participation in political decision making.

Indulging in some fantasy for a moment, consider the possibilities for a renaissance of classical democratic theory. When the spread of new and emerging information technologies reaches far and wide and becomes as commonplace as the telephone or the car, there would be no further need for representatives to vote on national legislation. Citizens would have access to a veritable ocean of information on which to base their decisions, and would vote directly on legislation. As the technology overcomes obstacles of distance and time, the nation would be

reduced electronically to the size of a city-state like that of ancient Athens. Even if this fanciful ideal was never fully realized, at least the diffusion of information technology could increase the quality and quantity of political participation by the citizenry.

Challenges: Infoglut and the Erosion of Consensus

When one looks beyond information technology to the people who use information, one is quickly roused from fantasy by a number of sobering realities. Daniel Bell (1973) estimated that the amount of information coursing through society will double every two years. Others suggest that scientific and technical information will double every 12 months. Given the increasingly complex nature of political decisions, many of which require considerable scientific and technical sophistication, this latter point is particularly unsettling. While the individual citizen would surely be challenged beyond his or her limits by this, even "the elite" may be paralyzed by an overwhelming deluge of complex data.

What hath information technology wrought? Infoglut. The result: citizens make decisions based more on image than on substance. A number of politicians have recently fallen victim to this phenomenon. Moreover, we are in danger of witnessing the erosion of a shared political and cultural reality, given the growing ability to selectively filter out the information we receive through the cable channels, satellite beams, and information services we choose. In sum, information technologies

challenge the ability of a citizen, or group of citizens, to fulfill the fundamental requirement of democracy: informed participation.

Remedying the Challenges of Information Technology

Look Beyond the Technology

As suggested in examining the challenges of information technology, one must look beyond the technology to the users of information to understand how the technology might be harnessed for the enhancement of democratic citizenship. A fixation with the technology causes us to forget a number of key points, all of which must be considered in order for the negative consequences of information technology to be remedied.

Information processing. Information has little use until it is processed by the citizen decisionmaker. The acquisition and processing of information exacts a cognitive "cost" and if the citizen is unwilling to pay the cost, the amount of information and the speed with which it can be obtained are irrelevant.

Contextual knowledge. The ability to obtain large amounts of information rapidly is also irrelevant if citizens lack sufficient contextual knowledge to guide their search. Research conducted by the Educational Technology Center of the Harvard Graduate School of Education suggests that effective use of databases requires background knowledge related to the database content (Lockheed, Gulovsen, and Morrison, 1985). In the context of democratic citizenship, this might include background know-

ledge relevant to contemporary political issues as well as more general knowledge about the political system in which citizen decisions are registered and their consequences felt.

Information selectivity. Effective use of information requires selectivity. On the one hand, this selectivity might be dysfunctional for effective democratic citizenship, as suggested earlier, if it resulted in a decay of national political consensus. On the other hand, selectivity can serve to enhance political and cultural cohesion. Which result occurs depends on the criteria one uses for information selection.

In considering how to meet the challenges of information technology, the issues of information processing, contextual knowledge, and selectivity must be addressed. Each is reflected in a number of proposed remedies.

Recommendations

Presented briefly first are some ideas for information technology specialists to consider, followed by a more lengthy discussion of suggestions directed to the education establishment.

For Information Technology

A considerable amount of effort is currently being expended in the design of human/computer interfaces for information systems. One fundamental design criterion is user-friendliness. User-friendliness in the context of information systems frequent-

ly refers to easing the user's burden of technical expertise. The technical details of a system should be transparent to the user, allowing him or her to interact with the information in the most natural way possible. Moreover, information interfaces should allow users to seek and retrieve information in much the same way they would outside the system with more traditional information technologies, affording the maximum flexibility for divergent search and retrieval strategies.

An overly-rigorous application of this design criterion, however, may only contribute further to the negative consequences of information technology with respect to the citizen decision-maker. Such an information system would allow users to pursue any and all retrieval strategies, including the most sloppy and inefficient strategies imaginable. The latter may well characterize the strategies used by many (if not most) citizens, and are thus less likely to help people cope with masses of information.

Information system interfaces should help enhance the efficiency of user searches, not simply to imitate current search strategies. Intelligent systems should be designed that come to "understand" the context and purposes that the user has brought to the system, that help users clarify their purposes, and that recommend further effective strategies. New information utilities should coach users as they structure their search and retrieval efforts. Such utilities might take the form of overlays for existing commercial databases and serve as options

for users to select if they wish. Intelligent information system interfaces will serve to reduce the "cost" of citizen information processing by structuring the citizen's investigative work and reducing the amount of time and effort wasted on fruitless strategies that yield useless results.

For the Education of Citizens

Education for effective democratic citizenship must include both knowledge and skills. With respect to the latter, students must receive explicit training in information-processing skills (Perkins, 1985). For curriculum developers, this means, for example, that instructional materials involving the use of databases must contain at least two components: (1) lessons that help convey the informational content of the database and (2) lessons that explicitly teach and reinforce the skills involved in using information systems to solve problems -- from defining the problem to structuring search strategies to evaluating the usefulness of information retrieved.

With respect to the knowledge aspect of citizen education, it is clear that for effective and efficient information retrieval and processing, citizens must possess fundamental contextual knowledge. The content of this prerequisite knowledge certainly includes understanding the political process, especially the available avenues for effective citizen participation both at the local and national levels (Newmann, 1980). Contextual knowledge also must include an understanding of cultural and political traditions in which American democracy is grounded and through

which it has flourished. In this point at least, one must applaud the recent report of the National Endowment for the Humanities [NEH] (1987) concerning humanities education in American public schools. The report argues that knowledge of one's cultural traditions informs citizen judgment and functions as "a kind of civic glue" (p. 7). If true, such knowledge represents at least a partial remedy for the splintering of reality fostered by new information technologies. Jefferson would find the notion of civic glue very appealing. Beyond this, he would doubtless laud the following NEH observation: "We wish for our children that their decisions be informed not by the wisdom of the moment, but by the wisdom of the ages; and that is what we give them when we give them knowledge of culture" (p. 28).

Striking a balance between skill development and knowledge transmission in education will help to reduce the cost of citizen information acquisition and processing by increasing processing proficiency and broadening the context for processing. Information use also requires selectivity, and this writer directs a strong suggestion to social studies educators in this regard. The social studies field should heed the recommendations advanced by Fred Newmann (1986) and others and finally abandon the notion of "coverage" and its related belief that all information is equally worthy of acquisition (or memorization). Social studies educators (and the general public as well) must remember that information is not the same as knowledge, that knowledge is

created when information is applied to a purpose, and that doing so requires time and depth.

Finally, one must argue for perspective in how information technology is addressed in education today. According to the Office of Technology Assessment (1982),

> The so-called information revolution, driven by rapid advances in communication and computer technology, is profoundly affecting American education. It is changing the nature of what needs to be learned, who needs to learn it, who will provide it, and how it will be provided and paid for. (p. 3)

Education institutions have responded with computer literacy courses, CAI, CMI, Advanced Placement Computer Science, and other initiatives of all flavors and colors (White & Hubbard, in press). Harriet T. Bernstein of the Council for Basic Education warns, however, that "our vision of the future must rest on something more substantial than revolutionary technological advances" (1983, p. 108). She continues:

> Our troubles today are compounds of historical, economic, social, psychological, technical, and moral forces. They can only be addressed by Renaissance men and women, adept in all of those realms, capable of synthesizing knowledge (as distinct from information), able to inspire and motivate others, and willing to persevere....If we are to stand any chance of solving our social and economic problems, we need to create a large pool of citizens with a basic liberal arts education, in touch with the best thinking from other places, times, and cultures....[A truly visionary] system of public education will prove itself by producing citizens with a deep understanding of political democracy, a tolerance for ambiguity, an abiding curiosity, and a firm grip on the values that sustain both family and civilization. (p. 109)

What Bernstein, and the NEH report, are arguing for is a renewed focus on the "big picture," the fundamental purposes of education in a free society. Their observations reflect a commitment to and faith in classical democratic theory -- and in the belief that citizens can be informed and participate responsibly. In this, they share Jefferson's faith in self-government. They also share his faith in society's ability to train its citizens to assume the burdens necessary to reap the blessings of freedom. Modern information technology challenges this faith, but need not destroy it. If, through careful and thoughtful design of both technology and instruction, we can reduce the cost of becoming informed citizens and can enhance the effectiveness of citizen participation, there is every reason to affirm with renewed conviction that the safest depository of society's ultimate powers is still "We the People."

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